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wherein at least two linear structures being arranged perpendicular to each other and dividing said area free of structures at least into three sections.

[Please amend claim 15 as follows:]

15. (Amended) Stamp device for printing a pattern on a surface of a substrate having a two-sided rigid carrier layer providing on it's first side a patterned layer made of a first material and being combined on it's second side with a soft layer made of a softer material than said first material,

said patterned layer provides at least one force transducer zone for monitoring a force induced load acting between said stamp and said substrate,

said force transducer zone is placed in an area near an edge of said patterned layer.

✓ Cancel claim 3.

R E M A R K S

The specification has been amended on page 4 to insert "the" and on page 13, a reference numeral was corrected.

Claims 1, 2, and 4-30 are pending in the application.

Claims 14 and 15 are objected to as being dependent from a rejected base claim. Claims 14 and 15 have been rewritten in independent form containing all the limitations the base claim and any intervening claims. It is respectfully submitted that claims 14 and 15 are in condition for allowance.

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Claims 1 and 2 have been amended with the limitations of claim 3. Claim 3 has been cancelled.

Claims 1, 2, 4-13 and 16-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biebuyck et al. (US pat 5,817,242) in view of Biebuyck et al. (US pat 5,925,259). US pat 5,817,242 corresponds to PCT/IB95/00609 application published as W097/06012 which is discussed on page 2 of the specification. US pat 5,925,259 corresponds to PCT/IB95/00610 application published as W097/06013 which is discussed on pages 2 and 3 of the specification. Biebuyck et al. '242 in Fig. 1D shows a stamp device comprising a silicon wafer 16 over an elastic layer 14 which in turn is over the patterned PMMA or polysilicon 12. The silicon wafer 16 is pre-treated with an olefin terminated silane which provides a glue-like layer 15 to bond the elastic layer. The examiner in the Office communication dated Dec. 07, 2001, page 2, section 2, line 4, stated "a carrier layer provided on it's first side a patterned material (12), combined with a second side made of a softer material (11) forming a two-sided rigid carrier layer." The examiner may be in error. Biebuyck et al. '242 does not show or suggest a two-sided rigid carrier. Layer 11 is not part of the stamp but is used in forming the stamp to prevent the adhesion or bonding of subsequent layers being built up on the silicon surface of wafer 10. Further in the above Office communication, the examiner at page 2, section 2, lines 6 and 7, stated "An elastic layer (14) can also be added over the patterned material (12) or PMMA." Layer 14 in Biebuyck et al. '242 is an essential part of the stamp in Fig. 1D positioned between silicon wafer 16 and patterned PMMA or polysilicon 12. The patterned PMMA or polysilicon 12 and layer 14 are on one side of silicon wafer 16, the carrier.

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Biebuyck et al. '259 describes a process for producing lithographic features in a substrate by lowering a stamp carrying a reactant onto a substrate, confining the subsequent reaction to the desired pattern, lifting the stamp and removing the debris of the reaction from the substrate. Fig. 9 shows a printing master roller 95 which carries an elastic layer 951 with microcontainers. The respective microcontainers in elastic layer 951 are filled via four color rollers 941-944 and lid layer 91. The fluid in the microcontainers in elastic layer 951 is transferred to paper 96. Master roller 95 merely has an elastic layer 951 with microcontainers. Even if Biebuyck et al. '259 were combined with Biebuyck et al. '242, there is no suggestion for the resultant structure to comprise a stamp device having a two-sided rigid carrier layer.

Neither Biebuyck et al. '242 or '259 show or suggest a stamp device having a two-sided rigid carrier layer as recited in independent claims 1 and 2. Claims 1 and 2 have been amended to recite "said carrier layer describes an x-y-plane in which said carrier layer is rigid and said carrier layer is flexible in a direction perpendicular to said x-y-plane." Neither Biebuyck et al. '242 or '259 show or suggest a stamp device having a two-sided rigid carrier layer having an x-y plane in which said carrier layer is rigid and at the same time is flexible in a direction perpendicular to the x-y plane.

Claims 4-9, 11-13, 16-18, and 22-29 contain further limitations of claim 1. The discussions presented for the patentability of claim 1 are herein incorporated for the patentability of claims 4-9, 11-13, 16-18, and 22-29.

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Claims 10, 19-21 and 30 contain further limitations of claim 2. The discussions presented for the patentability of claim 2 are herein incorporated for the patentability of claims 10, 19-21 and 30.

It is respectfully submitted that claims 1, 2, 4-30 are patentable over Biebuyck et al. '242 or '259, alone or in combination.

References C-E cited by the examiner on PTO-892 but not applied to reject the claims have been reviewed and it is submitted that the claims of this application are patentable thereover.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Further favorable action and allowance of the claims is earnestly requested.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Specification

Paragraph beginning at page 4, line 12, has been amended as follows:

It is a further object of the invention to avoid disadvantages as characterized before. The inventive stamp device itself as well in combination with advantageous additional features should be the basis for a precise transfer technique of micron and sub micron-scaled structures onto a plane or curved surface.

Paragraph beginning at page 13, line 1, has been amended as follows:

The material of which the soft layer 5 is made of provides a compression modulus which is at least 5 times smaller than the compression modulus of the patterned layer 2. Typically the soft layer 5 provides a Young modulus of 0.6 MPa (21Shore A) whereas the stamp material of which the patterned layer is made of, like PDMS, provides a Young modulus of about 3 MPa. Also the thickness of the soft layer 5 should be much bigger than the thickness of the stamp 2. A typical layer thickness of the soft layer 5 is about 2 mm whereas the stamp is about 200 μm and thinner. The carrier layer [3] 1 is made of a rigid material which is rigid in the plane of the layer, i.e. rigid in the x-y-plane but flexible perpendicular to this plane, so that the stamp device can be curved for example around the superficies of a cylinder.

In the Claims

Claim 1 has been amended as follows:

1. (Amended) Stamp device for printing a pattern on a surface of a substrate having a two-sided rigid carrier layer providing on it's first side a patterned layer made of a first material and being combined on it's second side with a soft layer made of a softer material than said first material,

said carrier layer describes an x-y-plane in which said carrier layer is rigid and said carrier layer is flexible in a direction perpendicular to said x-y-plane.

Claim 2 has been amended as follows:

2. (Amended) Stamp device for printing a pattern on a surface of a substrate comprising:

a two-sided rigid carrier layer providing on it's first side a patterned layer made of a first material and a contact means having at least one soft layer made of softer material than said first material for contacting the second side of said carrier layer,

said carrier layer describes an x-y-plane in which said carrier layer is rigid and said carrier layer is flexible in a direction perpendicular to said x-y-plane.

Claim 14 has been amended as follows:

14. (Amended) Stamp device for printing a pattern on a surface of a substrate having a two-sided rigid carrier layer providing on it's first side a patterned layer made of a first material and

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being combined on it's second side with a soft layer made of a softer material than said first material,

wherein said patterned layer provides at least one force transducer zone for monitoring a force induced load acting between said stamp and said substrate,

said force transducer zone provides a patterned structure surrounding at least an area free of structures and in said area free of structures additional structures, like linear

structures, are provided which divide said area free of structures in at least two sections,

[Stamp device according to claim 13,] wherein at least two linear structures being arranged perpendicular to each other and dividing said area free of structures at least into three sections.

Claim 15 has been amended as follows:

15. (Amended) Stamp device for printing a pattern on a surface of a substrate having a two-sided rigid carrier layer providing on it's first side a patterned layer made of a first material and being combined on it's second side with a soft layer made of a softer material than said first material,

said patterned layer provides at least one force transducer zone for monitoring a force induced load acting between said stamp and said substrate,

[Stamp device according to claim 11, wherein] said force transducer zone is placed in an area near an edge of said patterned layer.

Claim 3 has been canceled.